Virtual Retinal Display Market - Global Industry Size, Share, Trends, Opportunity, and Forecast, 2018-2028
Segmented By Technology (Optics, Driver and Controller, Electronics, Light Source, Others), By End-User Industries (Media And Entertainment, Aerospace And Defense, Healthcare, Others), By Region, Competition

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Report description:

Global Virtual Retinal Display market is anticipated to grow during the forecast period, 2024-2028. The demand for Virtual Retinal Display is expected to increase the use of virtual retina displays (VRD) in the simulation & training, entertainment, and healthcare sectors. The market for virtual retinal displays is primarily driven by convenient features including low power consumption and the capacity to produce high-resolution images in real time.

Moreover, the demand for small, lightweight wearables that can provide users with the required data in real-time. The gaming, entertainment, and sports industries are seeing an increase in demand for these devices. For a range of applications, such technology is also necessary in the engineering and medical fields. VRD makes it simple to produce images that may be viewed in ambient daylight as well as in natural light. A surgical display would benefit greatly from using VRD because of its high brightness, contrast, and resolution. Moreover, research indicates that VRDs have a substantial commercial potential as a display option for persons with poor vision.

The widespread use of VRD technology is also anticipated in training and simulation activities since it reduces training costs by simulating the experience and does not require a physical setup. The application of virtual retinal display technology is constrained by a few issues. Due to the lack of radiation protection in VRD technology, the possibility of retinal injury continues to be a concern. The images transmitted through virtual retinal displays could conflict with actual objects, distracting users. Future applications for virtual retinal display technologies include instant message viewing, presenting with notes streamed to your eyes, getting directions while driving to a location, and viewing recipes while cooking.

A new head-mounted display device called a virtual retinal display (VRD), also known as a retinal projector, projects visual pictures utilising modulated lasers or scanning, low-power liquid crystal displays (LCDs) directly onto the retina of the human eye. Users can view high-resolution images in real time thanks to the device's probing of red, green, and blue light beams over the retina from a coherent photon source. Bright, full-color, high-contrast, and resolution dynamic displays can be produced with VRD with little power consumption. Additionally, they give people the impression that they are viewing a large display floating in the air. As a result, VRD is frequently used to treat and improve the vision of people with visual impairments. In addition to this, it has a wide range of uses in the military, aviation and tactical, engineering, gaming and entertainment, sports, and healthcare industries.

Increasing Demand For Higher-Quality Image Projection Technologies

The demand for VRD devices in augmented and virtual reality (AR/VR) applications, particularly in the entertainment and gaming industries, has been enabled by the increased requirement for improved quality picture projection technologies, which is majorly driving the market expansion. In keeping with this, the increasing use of VRDs across numerous industries is contributing to growth due to their enlarged field of view (FoV), content connection, and high levels of privacy. Additionally, the market is expanding due to the widespread use of VRDs in surgical displays and their potential for use in therapeutic treatments. In addition, the market is expected to grow owing to the increasing use of technology in the engineering sector, which enables field workers to obtain critical data like operational protocols and circuit diagrams instantly. Additionally, the growing use of VRDs for training and simulation in the aerospace industry is boosting market growth by simulating the experience and doing away with the need for actual props. In addition, the development of lightweight, portable devices with wide-angle, high-resolution displays, and the advancement of display technologies that offer radiation protection to reduce risks of retinal damage are having a favourable impact on market growth.

Advantages of Technology Over Screen-Based Devices

In comparison to a screen-based display, a screenless display has a wider viewing angle and uses less hardware components, which is expected to boost market growth. When compared to other screen-based device providers, the VRD system, which consists of light sources, optics, and controllers, may be fitted on a spectacle frame, enhancing design benefits for market vendors. The VRD technology is anticipated to displace existing screen-based AR gaming devices owing to its low power consumption feature (caused by the use of fewer diodes to convey images to the consumer's eye). Additionally, retinal projectors offer images and video with a high resolution that flat panel displays are unable to match.

Market Segmentation

Global Virtual Retinal Display market is segmented on the basis of technology and end-user industries. Based on technology, the market is segmented into optics, driver and controller electronics, light source, and others. Based on end-user industries, the market is further segmented into media and entertainment, aerospace and defense, healthcare, and others.

Market Player

Major market players in the global virtual retinal display market are Avegant Corporation, Magic Leap Inc., QD Laser Co. Ltd, Himax Technologies Inc., Innovega Inc., Omnivision Technologies Inc., Optinvent, Vuzix Corporation, Texas Instruments Inc., and Analogix Semiconductor.

Report Scope:

In this report, the Global Virtual Retinal Display market has been segmented into the following categories, in addition to the industry trends which have also been detailed below:

- Virtual Retinal Display Market, By Technology
  - Optics
  - Driver and Controller
  - Electronics
  - Light Source
  - Others
- Virtual Retinal Display Market, By Industry Vertical
  - Media And Entertainment
  - Aerospace And Defense

o Healthcare
o Others
- Virtual Retinal Display Market, By Region:
o North America
- United States
- Canada
- Mexico
o Asia-Pacific
- China
- India
- Japan
- South Korea
- Australia
- Singapore
- Malaysia
o Europe
- Germany
- United Kingdom
- France
- Russia
- Spain
- Belgium
- Italy
o South America
- Brazil
- Argentina
- Colombia
- Peru
- Chile
o Middle East
- Saudi Arabia
- South Africa
- UAE
- Israel
- Turkey

Competitive Landscape
Company Profiles: Detailed analysis of the major companies present in the Global Virtual Retinal Display market.
Available Customizations:
With the given market data, Tech Sci Research offers customizations according to a company's specific needs. The following customization options are available for the report:
Company Information
- Detailed analysis and profiling of additional market players (up to five).

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